



SKILLSHEET 7.3

Substitution

To plot a graph, we can first construct a table of values that shows the corresponding values of x and y for a given equation. To find the y -value that matches a given x -value, we substitute this x -value into the equation and evaluate.

WORKED EXAMPLE

For the linear equation $y = 2x + 5$, find the corresponding y -values when $x = -3, -2, -1, 0, 1, 2$ and 3 .

THINK

- 1 When $x = -3$, $y = 2 \times -3 + 5$.
When $x = -2$, $y = 2 \times -2 + 5$.
When $x = -1$, $y = 2 \times -1 + 5$.
When $x = 0$, $y = 2 \times 0 + 5$.
When $x = 1$, $y = 2 \times 1 + 5$.
When $x = 2$, $y = 2 \times 2 + 5$.
When $x = 3$, $y = 2 \times 3 + 5$.
- 2 Show the results as a table of values.

WRITE

$y = -1$
 $y = 1$
 $y = 3$
 $y = 5$
 $y = 7$
 $y = 9$
 $y = 11$

x	-3	-2	-1	0	1	2	3
y	-1	1	3	5	7	9	11

Try these

For each of the following linear equations, find the corresponding y -values when $x = -3, -2, -1, 0, 1, 2$ and 3 . Show the results as a table of values.

1 $y = 3x$

2 $y = x + 4$

3 $y = 2x + 1$

4 $y = 3x + 7$

5 $y = x - 6$

6 $y = 2x - 3$

7 $y = 5x - 5$

8 $y = 6 - x$

9 $y = -2x + 1$

10 $y = 8 - 3x$



SKILLSHEET — ANSWERS

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Substitution

1 $y = 3x$

x	-3	-2	-1	0	1	2	3
y	-9	-6	-3	0	3	6	9

2 $y = x + 4$

x	-3	-2	-1	0	1	2	3
y	1	2	3	4	5	6	7

3 $y = 2x + 1$

x	-3	-2	-1	0	1	2	3
y	-5	-3	-1	1	3	5	7

4 $y = 3x + 7$

x	-3	-2	-1	0	1	2	3
y	-2	1	4	7	10	13	16

5 $y = x - 6$

x	-3	-2	-1	0	1	2	3
y	-9	-8	-7	-6	-5	-4	-3

6 $y = 2x - 3$

x	-3	-2	-1	0	1	2	3
y	-9	-7	-5	-3	-1	1	3

7 $y = 5x - 5$

x	-3	-2	-1	0	1	2	3
y	-20	-15	-10	-5	0	5	10

8 $y = 6 - x$

x	-3	-2	-1	0	1	2	3
y	9	8	7	6	5	4	3

9 $y = -2x + 1$

x	-3	-2	-1	0	1	2	3
y	7	5	3	1	-1	-3	-5

10 $y = 8 - 3x$

x	-3	-2	-1	0	1	2	3
y	17	14	11	8	5	2	-1